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the girth four feet for maximum volume. To prove this, let P denote the perimeter of a cross section and A its area. As P changes in value, the shape of the cross section remaining constant, A varies as P^2. That is, $A = kP^2$. Then if L denote the length of the parcel, and V its volume, $V = kP^2L$ and $L + P = 6$. From these two equations the value of P that makes V a maximum is found to be 4. The corresponding value of L is 2.

Since a square has a larger area than any other rectangle having the same perimeter, the largest mailable box in the form of a rectangular parallelopiped is therefore one whose dimensions are $1 \times 1 \times 2$ feet. Its volume is 2 cubic feet. The largest mailable cube is one whose edge is 14.4 inches long. Its volume is 1.728 cubic feet. The largest mailable sphere has a diameter of 17.38 inches. Its volume is 1.592 cubic feet.

A cube whose edge is 15 inches is not mailable because the sum of its length and girth is 75 inches. But a right circular cylinder, whose length is 24 inches and whose diameter is 15.27 inches, is mailable, because the sum of its length and girth is only 72 inches, in spite of the fact that its volume exceeds that of the cube by more than 1,000 cubic inches, and the fact that it would take up more room in a mail car. Thus the use of the sum of length and girth as a measure of size leads to the absurd result that sometimes the smaller of two parcels will be rejected by the postal authorities because it is too large, while the larger of the two will be accepted as being small enough. In spite of this absurd result, the rule can be amply justified on the ground of the ease with which it can be applied. With a six-foot tape, the postal clerk can tell in a moment whether or not a parcel is too large to be mailed. The man who is waiting his turn at the post office window will be glad that the clerk does not have to compute the cubical content of every parcel presented.

W. H. Bussey.

NEW BOOKS.

W. H. Bussey, Chairman of the Committee.

A short account of the history of mathematics, 5th edition, by W. W. R. Ball. London and New York, Macmillan, 1912. 24 + 536 pp. $3.25.

Practical geometry and graphics; a text book for students in technical and trade schools, evening classes, and for engineers, artisans, draughtsmen, architects, etc., by E. L. Bates and F. Charlesworth. New York, Van Nostrand, 1912. 8 + 621 pp. $2.00.

Practical mathematics, by E. L. Boter and F. Chorlesworth. New York, Van Nostrand, 1912. 8 + 513 pp. $1.50.

Elements of descriptive geometry, by G. F. Blessing and L. A. Darling. New York, Wiley, 1912. 14 + 219 pp. $1.50.

The method of Archimedes recently discovered by Heiberg; a supplement to "The works of Archimedes," 1897, edited by T. L. Heath. New York, Putnam, 1913. 51 pp. $0.75.

An introduction to mathematical physics, by R. A. Houston. New York, Longmans, 1913. 9 + 199 pp. $2.00.

Memoranda mathematica; a synopsis of facts, formulæ, and methods in elementary mathematics, by the head master of the Kingswood School, Bath, England. Oxford, University Press, 1912. 4 + 272 + 28 pp. $1.75.

Life assurance primer; a textbook dealing with the practice and mathematics of life insurance, for advanced schools, colleges, and universities. 3d edition, revised and enlarged, by H. Moir. New York, Spectator Co., 1912. 7 + 230 pp. $2.00.

Practical mathematics; being the essentials of arithmetic, geometry, algebra, and trigonometry, in 4 parts. Parts 1, 2, by C. I. Palmer. New York, McGraw-Hill Co., 1912. $0.75 each.

Geometrical optics, by A. S. Percival. New York, Longmans, 1913. 6 + 132 pp. $1.50.

A course in the principles of mechanical drawing, by J. B. Whitmore. Columbus, O., Champlin Press, 1913. 2 + 2 + 72 pp. $1.85.

Reliable interest tables, by E. V. Williams and G. G. Bodeen. Fresno, Cal., Bankers Novelty Co., 1912. $3.50.

BOOK REVIEWS.

New Analytic Geometry. By Percey F. Smith, and Arthur Sullivan Gale. Ginn and Company, Boston, 1912. x+342 pages.

This new book on analytic geometry is considerably smaller than the *Elements of Analytic Geometry* by the same authors. Much of it follows, word for word, the old book, but many parts have been rewritten and rearranged. The book has been made smaller by shortening the work on the conic sections and by omitting the chapters on euclidean transformations, inversion, and poles and polars. The conics are defined separately, the parabola in terms of focus and directrix, and the ellipse and hyperbola in terms of their foci alone. They are studied by means of their equations in rectangular coordinates rather than by means of polar coordinates as was done in the beginning of the chapter on conics in the old book.

A special feature of the book is the new chapter on "Empirical Equations." The finding of equations to represent, at least approximately, curves given by experiment is not discussed in the current books on analytic geometry, although it is one of the most important parts of the subject for those who use analytic geometry in physics, experimental psychology, and statistics. Eleven pages are given to it in this book.

Another new chapter is on "Functions and Graphs." It is mostly a study of maxima and minima of functions without the use of the calculus. Practical problems in maxima and minima are given to be solved experimentally by means of carefully drawn graphs.